EFFECTIVE COST MANAGEMENT: APPLYING ACTIVITY - 
BASED COSTING IN PRIVATE HEALTHCARE - (HAEMODIALYSIS 
SERVICES)

Cheow Jen Hurn
EFFECTIVE COST MANAGEMENT: APPLYING ACTIVITY - BASED COSTING IN PRIVATE HEALTHCARE – (HAEMODIALYSIS SERVICES)

CHEOW JEN HURN

A dissertation submitted in partial fulfillment of the requirements for the degree of Corporate Master in Business Administration

Faculty of Economics and Business
UNIVERSITI MALAYSIA SARAWAK
2011
ACKNOWLEDGEMENT

I would like to take this opportunity to thank the parties and the people that were involved in assisting me and guiding me to the completion of this project.

First of all, I would like to thank to Universiti Malaysia Sarawak (UNIMAS) for every support and effort in making sure that all the students will be able to take their final year project, which is one of the prerequisites for graduation.

I would also like to thank my faculty, Faculty of Economics and Business (FEB) for the supports and resources provided to help me finish my corporate business project. I would also like to express my sincere gratitude to my supervisors, Dr. Mohd Jais for his time and efforts invested in supervising me to accomplish this case study. Had it not been for the advices, guidance and supervisions, this project would not have been able successful completed on time.

Last but not least, I would like to thank to my friends and family who were constantly besides me to give me encouragement during the times of difficulties in the period of the development of this project. I would not have made it thus far with the absence of their support and encouragements.
# Table of Contents

ACKNOWLEDGEMENT ............................................................................................................. I  
TABLE OF CONTENTS ........................................................................................................... II  
LIST OF TABLES .................................................................................................................. III  
LIST OF FIGURES .................................................................................................................. IV  
ABSTRACT ............................................................................................................................... V  
ABSTRAK ................................................................................................................................. XII  
CHAPTER ONE: INTRODUCTION ......................................................................................... 1  
1.1 Background ..................................................................................................................... 1  
1.2 Problem Statements ...................................................................................................... 3  
1.3 Research Objectives ...................................................................................................... 3  
1.4 Definition of Key Terms ............................................................................................... 4  
1.5 Scope of Study ............................................................................................................... 6  
1.6 Organization of Chapters ............................................................................................. 7  
CHAPTER TWO: LITERATURE REVIEW ............................................................................ 8  
2.1 Introduction .................................................................................................................... 8  
2.2 Literature Review ......................................................................................................... 8  
2.3 Theoretical Frameworks ............................................................................................... 10  
CHAPTER THREE: METHODOLOGY ............................................................................. 15  
3.1 Introduction .................................................................................................................... 15  
3.2 Research Site and Data Collection .............................................................................. 15  
3.3 Methodological Steps ................................................................................................. 15  
3.3.1 Activity Mapping & Activities Analysis ................................................................. 16
3.3.2 Classification of Cost ................................................................. 19
3.3.3 Calculation of detail costing ......................................................... 20
CHAPTER FOUR: RESULTS ........................................................................ 21
4.1 Introduction .............................................................................. 21
4.2 Result ....................................................................................... 21
CHAPTER FIVE: DISCUSSION AND CONCLUSION ................................. 24
5.1 Introduction .............................................................................. 24
5.2 Discussion ............................................................................... 24
5.3 Limitation of the Study ............................................................... 25
5.4. Conclusion .............................................................................. 26
REFERENCES ................................................................................ 28

LIST OF TABLES
Table 1: Activity Pools and Activities for dialysis services ....................... 30
Table 2: Activity Based Costing: Classification of Cost ............................. 31
Table 3: Detail Direct consumable items .................................................. 32
Table 4: Detail staff cost to perform dialysis treatment .............................. 33
Table 5: Detail Maintenance cost to support the dialysis treatment ............. 34
Table 6: Depreciation of the dialysis machines ....................................... 35
Table 7: Detail rental of the dialysis unit ................................................ 36
Table 8: Detail Utilities cost to perform the dialysis treatment ................... 37
Table 9: Detail admin cost to perform the dialysis treatment ...................... 38
Table 10: Total Cost for Dialysis Treatment ........................................... 39
Table 11: Resources matrix per activity ................................................ 40
LIST OF FIGURES

Figure 1: Cost Driver diagram .......................................................................................... 12
Figure 2: Activity-bases Costing benefit diagram ........................................................ 13
Figure 3: ABC Dialysis Treatment Activity Mapping.................................................. 17
Figure 4: Dialysis Treatment Flowchart........................................................................ 18
ABSTRACT

In today's competitive environment, accurate costing information is crucial for all kinds of businesses, especially in services industry. Argued to be superior to the traditional costing management system, Activity-Based Costing system (ABC) has increasingly attracted the attention of practitioners and researchers alike as one of the strategic tools to aid managers for better decision making in various industry. The benefits of ABC system and its impacts on companies' performance have motivated numerous empirical studies on ABC system to private healthcare services.

This case study was performed aiming at applying the Activity-based Costing method in a hemodialysis center in support its pricing strategies and also management decision making. Among the services industries, healthcare provider is one of the business that most resource consuming component. The private healthcare's are looking for a way to stay competitive in an environment where the share of indirect costs increase in the cost structure.

ABC defines the costs in terms of an organization's processes or activities and determines cost associated with significant activities or event. ABC able indicates the direct and indirect cost a very detail. The ABC able to tell the management of private healthcare services the most accurate cost where related to the services or activities provided to the customers.
The information provided by the ABC method has optimized the overall understanding of the cost driver process and provided the foundation for assessing performance and improvement in the hemodialysis services. ABC also can adapt to other hospital services in order to make decision in pricing and resource management. In the competitive business world, attractive pricing able to lead the market share.
ABSTRAK

Dalam dunia perniagaan yang bersaingan kuat ini, maklumat pengiraan kos yang tepat adalah sangat penting bagi semua jenis perniagaan, terutamanya dalam industri perkhidmatan. Berbanding dengan system pengurusan kos tradisional, Kos Berasaskan Activiti (ABC) menjadi semakin menarik perhatian para pengamal dan penyelidik sebagaimana salah satu alat strategik untuk membantu pengurus untuk membuat keputusan yang lebih baik dan tepat. Manfaat dari sistem ABC dan kesannya terhadap prestasi syarikat telah memberi motivasi kepada banyak kajian empirik dalam sistem ABC.

Kajian kes ini dilakukan bertujuan untuk melaksanakan kaedah "ABC" di salah satu pusat haemodialisis swasta dengan memberi penunjuk untuk strategi menentukan harga jualan dan juga membuat keputusan pengurusan. Di antara industri perkhidmatan, perkhidmatan hospital swasta merupakan salah satu perniagaan yang paling banyak melibatkan sumber-sumber dalam memberi perlayanan kepada pelanggannya. Semua hospital swasta mencari cara yang berkesan untuk bersaing dalam dunia perniaga di mana meningkatkan kos tidak langsung dalam struktur kos.

ABC mendefinisikan kos mengikut proses-proses dalam organisasi atau kegiatan yang bertentangan dengan activiti yang berkaitan dengan perlayanan kepada pelanggan. ABC dapat menunjukkan kos langsung dan tidak langsung dalam butiran. ABC boleh memberitahu pengurusan dengan kos yang paling tepat bagi kos-kos yang berkaitan dengan perkhidmatan atau aktiviti yang diberikan kepada para pelanggan.
Maklumat yang diberikan oleh kaedah ABC telah membari pemahaman keseluruhan pembawa kos dan penilaian prestasi dan pembaikan dalam perkhidmatan hemodialisis. ABC juga sesuai untuk perkhidmatan kesihatan swasta yang lain dalam membantu membuat keputusan untuk penentuan harga dan pengurusan sumber-sumber dalam organisasi. Dalam dunia perniagaan yang kompetitif, harga menarik mampu memimpin pasaran.
CHAPTER ONE: INTRODUCTION

1.1 Background

Economic recession and inflation has causing the materials costs increase rapidly. This has been causing the healthcare industry facing hitches and challenges in balancing limited resources and costs effectiveness. At the same time, the utilisation of the resources are not been focus due to the cost structure not allocated to the related activity. So, the entire industry needs to come out with some effective solution to overcome this problem. An effective cost management is essential for the healthcare industry especially for long term treatment services such as dialysis treatment, cancer treatment and other medical where need regular treatment.

Haemodialysis is a procedure used in cases of kidney failure, to remove waste products like creatinine, urea and excess fluids from the blood. It is a form of renal replacement therapy which may be performed as an outpatient procedure or an inpatient therapy if the patient is already admitted to the hospital. Patients who require routine Haemodialysis may need to go to a dialysis treatment Centre to get the treatment. It is one of the most expensive treatments as it need long term treatment.

This case study is to find out the effectiveness of implement the cost management to enhance the cost effectiveness in hemodialysis treatment. By improving the cost management it will benefit the management and the patients as well. Accuracy of labour cost, time cost and the usage of the utilities cost are the most
difficult to be identified. Management needs to know the utilization of resources capacity in providing the quality services to the customers.

To stay competitive, Activity-Based Costing (ABC) is an essential concept to assign the cost management according to the usage of the services. It can give more information to the management in calculating the lump sum cost. Cost management mainly relates the costing structure and the profit margin. These efforts resulted with the interest in finding and efficiently using scarce resources which were reflected by the gaining popularity of ABC concepts such as more accurate cost estimation and maintaining the quality of services while controlling cost. By applying the cost management system, it will benefit the organization in managing the resources more efficient. In the business oriented healthcare industry, they needs to make sure the pricing are competitive enough to compete among industry.

Gerardine Doyle 2008 has done a study related to the adoption of the ABC in Ireland. The research found that healthcare industry is getting more popular than other industry in implementation of ABC system. More than 50% of the healthcare provider has adopted the ABC in controlling their costing. The research had found that with adoption of ABC, the organization able to calculate the cost with more accurate.

Reaf (2005) studies the improvement of the implementation of ABC in USA healthcare industry. The performance of the healthcare provider with adoption of ABC proved to yield better result as compared the non-adoption healthcare provider. Given the cost pressures on the healthcare industry and its limited resources, it might be expected that the industry would welcome a tool such as ABC. ABC has started to
migrate from manufacturing to services industries, the general level of interest in the technique in the healthcare industry appeared to be high.

1.2 Problem Statements

The challenges faced by the healthcare industry as mention earlier, is a very crucial task for the management to come out the solution to overcome the challenges. Management needs to develop the new costing structure to contribute to the effective pricing decision making. Many organizations set pricing based on average cost and direct related cost. Most of the time, the indirect costs have been ignored. If having the wrong costing, it will affect the profit margin and also the cash management of the organization.

Secondly, low utilization of the resources will reduce the productivity and the efficiency in services industry in the healthcare industry. The efficiency of the healthcare provider will impact to their reputation in the niche market.

1.3 Research Objectives

The aim of this study is to present practical ABC model developed in Dialysis department in private healthcare. The objectives of the case study are:

i. To determine the effectiveness of the cost management by implement the ABC method to the private Haemodialysis Services.
a. Helping private healthcare provider to boost their competitiveness. With the effective pricing strategies, it helps the services provider to develop a very competitive pricing based on the ABC method.

ii. To investigate the utilization of the resources and pricing decision making of the Haemodialysis treatment.

a. To find out how ABC helping managers to make wise decisions. Management able to analyses the utilization of the resources in carry out the quality services.

1.4 Definition of Key Terms

The following terms are defined operationally for the purpose for this study:

- **Effectiveness:**
  (i) Measure of a business process can be indicated by the resource inputs needed to produce a level of an enterprise objective
  (ii) This is a measure of the match between stated goals and their achievement.

- **Activity-Based Costing:**
  (i) A costing model that identifies activities in an organization and assigns the cost of each activity resource to all products and services according to the actual consumption by each: it assigns more indirect costs (overhead) into direct costs.

- **Direct Cost:**
  (i) An expense that can be traced directly to (or identified with) a specific cost center or cost object such as a department, process, or product
(ii) Direct costs (such as for labor, material, fuel or power) vary with the rate of output but are uniform for each unit of production, and are usually under the control and responsibility of the department manager.

(iii) As a general rule, most costs are fixed in the short run and variable in the long run. Also called direct expense, on cost, operating cost, prime cost, variable cost, or variable expense, they are grouped under variable costs.

- **Indirect Cost:**
  
  (i) Costs that are not directly accountable to a cost object (such as a particular function or product). Indirect costs may be either fixed or variable. Indirect costs include taxes, administration, personnel and security costs, and are also known as overhead.

- **Haemodialysis:**
  
  (i) In medicine, dialysis is primarily used to provide an artificial replacement for lost kidney function in people with renal failure.

  (ii) Dialysis may be used for those with an acute disturbance in kidney function (acute kidney injury, previously acute renal failure) or for those with progressive but chronically worsening kidney function—a state known as chronic kidney disease stage 5 (previously chronic renal failure or end-stage kidney disease).

- **Healthcare provider:**
  
  (i) An individual or an institution that provides preventive, curative, promotional or rehabilitative health care services in a systematic way to individuals, families or communities.

  (ii) An individual health care provider (also known as a health worker) may be a health care professional, an allied health professional, a community health
worker, or another person trained and knowledgeable in medicine, nursing or other allied health professions, or public/community health.

(iii) Institutions (also known as health facilities) include hospitals, clinics, primary healthcare centers and other service delivery points. The practice of health professionals and operation of health care institutions is typically regulated by national or state/provincial authorities through appropriate regulatory bodies for purposes of quality assurance. Together, they form part of an overall health care system.

- Cost Driver:

  (i) Any factor or activity that has a direct cause-effect relationship with the resources consumed. In ABC cost drivers are used to assign activity cost pools to products or services

1.5 Scope of Study

This case study is performed aiming at implementing the ABC method in private healthcare provider. The study focused at a Haemodialysis center where giving dialysis treatment to the publics in Sarawak. This study will analyze the detail of the costing for the treatments and help in managing the pricing strategic decision making.

The purpose of applying ABC in haemodialysis Centre is to accurately depict and assess costs, by aligning them with treatment processed related activities. Besides, to get information and detail picture of the costing structure in order to fully utilize the resource for private healthcare services.
ABC system is to analyze the overheard cost to the direct cost according to the activity related to the haemodialysis treatment. The cost will separated into 4 categories such as Fixed Direct cost, Fixed Indirect Cost, Variable Direct Cost and Variable indirect cost depends on the activity involved. The whole processes of the treatments will list out and identify the detail resources needed and its' costing.

1.6 Organization of Chapters

The present chapter introduces the practical of the Activity-based Costing in private healthcare. It also explains how the ABC can help the management in setting the price and decision making. Chapter 2 will review past literature on ABC in healthcare provider and how to analyze the costing by using ABC system. Chapter 3 will account for the research methodology, and the steps needed to analyze the costing structure. Chapter 4 will exhibit the result of the implementation of ABC to the Haemodialysis treatment. Last but not least, Chapter 5 will present the discussion of findings, limitations and implications of this study while offering directions for future research.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this chapter, many of the past literature related to the implementation of ABC has been reviewed.

2.2 Literature Review

Dowless, (1997) has concluded that by using ABC to determine the cost of unused capacity and for making strategic management decision would reduce costs he mentioned that ABC enables providers to identify inefficiencies and assess the effect of management actions to correct these inefficiencies. Management can restructure the processes or the unused resource to a revenue generated activities. The resources and their costs are clarified first. Then the costs are allocated with cost drivers to the activities, and found out with the help of activity analysis. Finally the costs are allocated to cost objects. The main purpose of this process is to find out the costs of the activities and the cost objects. For example to have additional shift if the demand of the dialysis treatment are increase and the manpower are underutilize.

The second view in Turney's (1991) framework is the process view. This study is to find out the cost driver to determine the related cost. The steps of ABC in this study consist of finding out the cost drivers of the activities and using the information for performance measurement.
Evren, (2007) examined the application of ABC in a Urology department of a university hospital and found out that it was practical. The costing allocated to the related activity are more accurate as compared to the traditional costing management. Based on the ABC, the study derived the hospital daily patients cost for the individual department. By using the activity analysis, ABC has the advantage of showing more detail information of cost objects which utilized different type and amount of sources.

Joon & Brian, (1997) stated that the ABC system focused on the activities performed to produce product in the manufacturing processes. Costs are traced from activities to product or services consumption of the activities performed. It was similar with the services provider that every service carryout will have few activities to complete the servicing provided to the customers. The underutilize resources can be identified by ABC.

Jouni M. (2000) in his study to Department of Radiology of Oulu University Hospital designed and tested the ABC theoretical framework system. The study also compared the conventional costing with Activity-based Costing (ABC) to find out the most effective cost management. The result suggested that the overhead costs were greatly reduced by the introduction of ABC as compared to conventional costing. The study concluded that the costing were much more detailed and precise, and the percentage of unspecified allocated overhead costs diminished drastically when ABC was in place, with the detailed information, the department was able to enhance the department services.
The actual proportion of activity cost assigned to the different categories of serves or product. This highly depends on the nature of their business. The studies by Deepak M. & Hemantkumar P. (2003) John C. (2000) mentioned that the ABC contributes significant information for the management in doing the pricing setting and also emphasis on the impact of ABC on profitability measures. There were few steps in recognition of costing.

2.3 Theoretical frame work

Turney’s (1991), ABC model is used as the theoretical framework in this case study. This framework consists of the cost view and the process view. The cost view can be seen as the phase of building the ABC-model. The cost view includes the basic steps of the ABC process and the main focus is in the costs.

The theoretical framework is to derive the efficient cost management by developing the workflow map of the company processes. This is to identify the activity mapping, the resource they consumed, and the driver or cause. It will provide the efficient tool to increase the profit margin and also effective customer services.

There have numerous articles that described the potential benefits to healthcare organizations from adoption of ABC systems. There are many studies focusing on not just one treatment procedure but also focus on the whole hospital or services.

The framework aligns costs (inputs) through activities (process) to outputs and outcomes. It allocates costs based on services provided. The treatment costs are
calculated by using the Activity Based Costing (ABC) analysis, the ABC mapping and cost category. The approach defines costs in terms of an organization's processes or activities. Cost-benefit analyses are rare in health care as they require the difficult step of placing a dollar value on health-related outcomes.

The model will serve the management to get information on resource consumption and costs in order to reach objective decision making. Prices should be determined by using an accurate costing system to prevent over costing or under costing the resources consumed in the hospitals. The emerging necessity of contemporary costing methods due to the changing product and service providing environment was also questioned by healthcare sector

Traditional cost accounting techniques allocate costs to all units based on an average unit cost. Although the average cost method provides acceptable product costs in general, it often fails to provide accurate costs on individual products. The resulting allocation is often not reflective of the degree to which a given unit actually uses the resources. Cost analyses in health care are typically restricted to assessing costs, often without explicit consideration of the outcomes or benefits. When outcomes are examined, we are able to consider cost minimization, cost-benefit, and cost-effectiveness analyses. Cost-minimization analyses assume that all outcomes of treatment are of equal value.
ABC uses three types of drivers which are Resource Driver, Activity Drivers and Revenue Driver. Each type of driver has different types of analysis for activity-based costing. In service-oriented businesses, activity drivers are the basis for assigning activities or activity pools to cost objects. Activity drivers provide services for activities that can be used for costing, pricing, profitability analysis, and strategic planning. In 2004, John Karolefski cited the following benefits realized by foodservice distributors and restaurants that have converted to activity-based costing practices:

- Understanding the true costs and productivity of capital equipment
- Understanding which products are most profitable and where to focus sales efforts
- More accurate pricing and determination of minimum order size
- Less time, money, and effort spent on the wrong products
- Make indirect cost to direct.

Figure 1: Cost Driver diagram
According to Karolefski, ABC works better if it kept simple (2004, pp. 18). Nevertheless, when implemented properly ABC yields benefits to the company, its business partners, and also to consumers.

According to the ABC benefit diagram, it carries benefit to the organization. First of all, by using the ABC method in the organization, it is able to assist the management to provide the most accurate cost to the production or services. The method of calculating the detail cost will be presented in the next chapter. In ABC method, the management is more focus on the indirect cost (overhead). ABC method is to make indirect expenses to direct expenses. In the ABC method, management can understand which product or services are most profitable. Cost of the product or
services are easier to calculate because all the detail cost has been analyzed. To identify the total cost for a new procedure or new product, management just need to sum up the cost according to the activities costs. As conclusion, ABC method benefit to the organization with accurate cost structure and more effective in doing pricing strategies than the conventional method.